IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Jack D. Stewart Joseph E. Hanusey, Jr.
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Group	:	

INFORMATION DISCLOSURE STATEMENT

Trenton, New Jersey
February 20, 2004

Commissioner for Patents
P. O. Box 1450
Alexandria VA 22313-1450

Sir:

This statement represents that the prior art listed herein includes, in the opinion of the applicant, the closest prior art of which the applicant is aware. The patents enclosed in this report are listed as follows:

PATENT NO.	PATENTEE	ISSUE DATE
4,089,208	Franks et al	05/16/78
4,106,263	Conrad	08/15/78
4,126,034	Conrad	11/21/78
4,182,159	Churchman	01/08/80
4,197,733	Holland, deceased et al	04/15/80
4,207,146	Kunke	06/10/80
4,291,573	Richter et al	09/29/81
4,366,715	Bradshaw	01/04/83
4,378,692	Walle	04/05/83
4,413,501	Schrock	11/08/83
4,417,465	Noe et al	11/29/83
4,494,402	Carney	01/22/85
4,555,935	Elert	12/03/85
4,581,919	Sullivan	04/15/86

4,587,619	Converse, III et al	05/06/86
4,617,824	Cybulski et al	10/21/86
4,675,070	Pasternicki	06/23/87
4,715,214	Tveter et al	12/29/87
Des.294,229	Bonazzi	02/16/88
4,791,805	Gates	12/20/88
4,942,758	Cofield	07/24/90
4,953,396	Langsdorf et al	09/04/90
5,092,162	Self	03/03/92
5,187,974	Mellits et al	02/23/93
5,201,212	Williams Barry N.	04/13/93
5,216,914	Horner	06/08/93
5,317,899	Hutchinson et al	06/07/94
5,331,842	Wellemeyer	07/26/94
5,375,455	Maresca, Jr. et al	12/27/94
5,377,530	Allen et al	01/03/95
5,412,978	Boone et al	05/09/95
5,415,033	Maresca, Jr. et al	05/16/95
5,528,926	Emmitte, Jr.	06/25/96
5,546,789	Balke et al	08/20/96
5,563,336	Mallet	10/08/96
5,574,213	Shanley	11/12/96
5,616,854	Berg	04/01/97
5,760,296	Wilson	06/02/98
5,847,264	Martin et al	12/08/98
5,880,358	Emmitte, Jr.	03/09/99
5,883,302	Kent	03/16/99
5,920,009	Enders et al	07/06/99
6,116,340	Wilson et al	09/12/00
6,164,139	Krimmer	12/26/00
6,199,432	Dunn	03/13/01
6,209,560	Shaw	04/03/01
6,223,766	Shaw et al	05/01/01
6,279,383	Balke et al	08/28/01
6,318,155	Carr	11/20/01
6,348,869	Ashworth	02/19/02
6,530,264	Rink et al	03/11/03
6,549,857	Fierro et al	04/15/03

United States Patent No. 4,089,208 discloses a "Pressure Test Fixture For Pressured Containers" patented May 16, 1978 to Nelson J. Franks et al and assigned to Owens-Illinois, Inc. The apparatus disclosed in the '208 patent for pressure testing containers includes a tank for receiving the container to be tested which includes a side wall, bottom wall, and a top wall. The top wall can be open to provide access to the interior

of the tank. A pressurized fixture is included for piercing the container to be tested. This apparatus thus provides communication with the interior of the container. The fixture includes a piercing nose portion and a threaded shank portion associated therewith for forming a threaded engagement with the pierced container. Communication is also established between the source of pressure fluid and the pressurizing fixture. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set

as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 4,106,263 discloses an "Apparatus For Pressure Testing Of Containers" patented August 15, 1978 to William A. Conrad and assigned to Rheem Manufacturing Company. The apparatus for pressure testing of containers of the '263 patent includes a surface with a pour opening. A housing is included for sealing and engaging the container surface and for allowing pressurized air through the pour opening into the container. Means are included for releasably retaining the

closure member and for supporting movement into the housing. An actuator is included for translating the closure member retaining device toward the pour opening on preselected pressurization of the container. A drive means is responsive to a predetermined pressure induced force on the closure member, and is energizable for imparting further movement to the closure member retaining device to secure the closure member itself within the pour opening. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter,

wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 4,126,034 discloses a "Method And Apparatus For Container Pressure Testing" patented November 21, 1978 to William A. Conrad and assigned to Rheem Manufacturing

Company. The system of the '034 patent includes a test chamber defining an open end and an axial passage extending from the open end for receiving a container. A support device is operable for advancing the container axially within the passage and sealing the open end of the chamber. A test chamber pressurizing device is operable to establish a predetermined pressure level in the passage. A sealing mechanism is provided for sealing the axis of the test chamber. A vent is operable to establish in the passage a predetermined pressure level different from the preselected pressure level. A control mechanism is included for successively operating the support, the pressurizing mechanism and the sealing means, as well as the vent. A detector is included for monitoring pressure change within the passage. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the

part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and

then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 4,182,159 discloses a "Pressure Testing Tool" patented January 8, 1980 to Ronald K. Churchman and assigned to Otis Engineering Corporation. The '159 patent provides a tool for pressure testing conductors having a mandrel with a means on the exterior thereof for sealing between the mandrel and the flow conductor. A flow passage is defined through the mandrel having openings on either side thereof. A check valve is contained within the flow passage which blocks fluid flow in one direction, and allows fluid flow in the other direction. A mechanism is included for expanding the sealing means. Slips are carried by the mandrel in an initially retracted position. Also included is a means for biasing the slips to an expanded position for engaging the flow conductor such that movement of the tool in one direction is prevented, and in the other direction is facilitated. A holding means is included for securing the slip biasing mechanism in an inert condition while activated. The means for expanding the sealing

means further includes telescoping sections on the mandrel adjacent to the sealing means. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full

depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 4,197,733 discloses a "Pressure Test Apparatus" patented April 15, 1980 to Richard W. Holland, deceased et al. The pressure test apparatus of the '733 patent include a connector for connecting to the unthreaded end of a heat exchanger tubing for testing it with a liquid test medium. It includes an outer body with a cylindrical counter bore, and an externally accessible opening for the admission of the liquid test media thereinto. A thrust ring is included with an initial abutting shoulder which limits the entry of the heat exchanger tubing to be tested on insertion of the tubing into the cylindrical counterbore. A piston ring is included to fit around the tubing to be tested. A collet is further included fitted about the tubing to facilitate testing thereof. A thimble means is included which is tapered and is slidably positioned adjacent

to the piston ring within the cylindrical counterbore, and is adapted to be moved by the piston ring against the collet for imparting a gripping movement thereto. End closure means defines a portion of the collet within the cylindrical counterbore, and is axially formed with a central passage to prevent the tubing the be tested to be inserted therethrough for gripping by the collar in abutment with the thrust ring. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure

will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 4,207,146 discloses a "Process For Testing Gases In Body Fluids For Partial Pressure And To A Testing Device Therefor" patented June 10, 1980 to Stefan Kunke and assigned to Dragerwerk Aktiengesellschaft. The '146 patent

discloses a process for partial pressure testing of gases and body fluids using a pair of electrodes. One of the electrodes is disposed within the body fluid and has a semi-permeable member thereon. It includes feeding the biasing voltage pulse to the electrode disposed within the body fluid to form a test pulse which results in a current flow between the electrodes. A transfer control pulse is formed of a duration smaller than the duration of the test pulse, and beginning at a time after the beginning of the test pulse. This is in order to form a transfer pulse having a duration substantial equal to the duration of the transfer control pulse, and an amplitude substantially proportional to the amplitude of the test pulse during the time of the transfer control pulse. The transfer pulse is then amplified and applied to an output transducer. In this manner, the amplified transfer pulse is proportional to the partial pressure of oxygen in the body fluid, and can be utilized to indicate the partial pressure thereof. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be

attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes",

a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 4,291,573 discloses a "Reject System For In-Line Pressure Testing Systems" patented September 29, 1981 to Simon J. Richter et al and assigned to The Coca-Cola Company. The in-line pressure testing mechanism of the '573 patent is for testing the integrity of a container. This is particularly adoptable for use when conveying a sequence of containers by individually applying pressure internally to each. This pressure is then sensed and a signal is generated with a magnitude which corresponds to the value of the pressure. The signal magnitude is then compared to the selected threshold signal value. An output control signal is provided which indicates the achievement of the signal magnitude and sets an enablement device in one of two states corresponding to the

presence and/or absence respectively of the output control signal. One of these states corresponds to an unacceptable container condition which indicates a bad part, and the other is to indicate an acceptable container condition which is a good part. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low

good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 4,366,715 discloses a "Pressure Testing Apparatus" patented January 4, 1983 to John H. Bradshaw and assigned to The Gillette Company. The apparatus of the '715 patent performs pressure testing and includes a pivotally movable lever arm with a first end and a second end. A holding means is included for securing the container in a fixed position with the ball against the lever arm first end. A sensing device is coupled to the lever arm first and for generating an electrical signal which is proportional to the instantaneous pivotal displacement of the lever arm. A transducer is included, along with an electronic control means

and a recording means. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If

the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 4,378,692 discloses a "Leak Detecting Monitor" patented April 5, 1983 to L. Irwin Walle and assigned to Air Monitor Co., Inc. The fluid pressure monitor of the '692 patent includes an axial display symbol sensing piston with a balance valve having an axially displaceable valve stem. An axially displaceable signal piston is included with a first surface exposed to gas pressure in a second chamber which communicates with the valve seat of the balance valve with the first chamber. Axial displacement of the balance valve controls the rate of flow of the reference gas from the first chamber to

the second chamber. A gas jet is included having an inlet connected to the sensing gas pressure source. The single piston blocks the outlet of the gas jet and produces a pneumatic signal which is detectable in response to the reference gas being admitted to the first chamber from the first chamber to the second chamber through the valve seat in response to a decrease in fluid pressure. In this manner, it can be monitored with respect to the reference gas pressure which axially displaces the sensing piston, thereby moving the valve face away from the valve seat of the balance valve. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current

pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 4,413,501 discloses an "Apparatus For Pressure Testing Tubing" patented November 8, 1983 to Peter Schrock. The '501 patent discloses an apparatus for pressure testing flexible tubing which has at one end a metal connector. It includes two support members with a mounting means for the first support member for moving it toward and away from

the second support member. A spigot is included on the first member which has a conical face for coaxial insertion into the end of the metal connector when the first support member is moved toward the second support member. A mechanical device is included for moving the first support member. Pressure drive means is disposed in the first support member and connected to the spigot, and the mechanical means for moving the spigot away therefrom into engagement for sealing the end of the metal connector. A duct is included in the spigot for introducing pressure testing fluid into the flexible tubing. A holding means is included on the second support member for holding the metal connector with the end thereof facing the spigot. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization

will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests

have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 4,417,465 discloses a "Portable Test Unit, For High Pressure Testing Of Tubes" patented November 29, 1983 to R. R. Noe et al. The portable high pressure tube testing equipment of the '465 patent includes a chassis and enclosure removable coupled thereto. This enclosure includes an external control panel which is breached by three apertures. A hydraulic pump is confined within the enclosure and is operative by compressed air. A first conduit communicates one of the apertures with the pump within the enclosure. A second conduit communicates another of the apertures of the pump within the enclosure. A third conduit communicates the pump with the third aperture also within the enclosure. The first and second conduits communicate with the pump in parallel relationship. The third conduit communicates with the pump and the third aperture in a series of one of the first and second conduits. The first conduit defines means for conducting operative compressed air to the pump. The second conduit defines means for conducting hydraulic fluid to the pump. The third conduit defines a means

for conducting hydraulic fluid. A valve is included in communication with the first and second conduits for controlling compressed air and hydraulic fluid conduct between one and another aperture and the first and second conduits. This valve means includes manual controls mounted on the control panel for operating thereof. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot

pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 4,494,402 discloses a "Device And Method For Pressure Testing" patented January 22, 1985 to P. T. Carney. The pressure testing device of the '402 patent is designed specifically for testing an engine cooling system. It includes a conduit along with a means for connecting the conduit

to the vent of the filler neck. It also includes a source of pressure for the conduit and means for determining the level of pressure therewithin. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to

displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 4,555,935 discloses an "Apparatus For Pressure Testing Of Can Bodies And Lids" patented December 3, 1985 to K. Elert and assigned to The Strob Brewery Company. The apparatus of the '935 patent is designed to pressure test closed cans. It includes a housing with an open portion and a cover to enclose the open portion which is movable between an open and closed position. A can body support is positioned within the housing for supporting a can body for testing. A can penetrating device is positioned within the housing. An actuating means is operable responsive to the cover moving from the open position to the closed position for actuating the can penetrating mechanism to cause the can to penetrate the wall of the can body. A gas supply means is

introduced under pressure through the can penetrating means into the can body for pressure testing thereof. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the

measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 4,581,919 discloses a "Retrievable Hydrostatic Testing Tool For Pressure Testing Tubing" patented April 15, 1986 to M. M. Sullivan. The '919 patent discloses a tool for pressure testing tubing which includes a central mandrel carrying a pair of vertically spaced packers which are expandable by fluid pressure. The mandrel forms a longitudinal bore having an outlet communicating with the annular space between the packers. The bow spring and slips suspending assembly of prior art tools is no longer needed. This

is because the packers themselves are utilized to spend or fix the tool in the tubing. A novel valve assembly has been provided to control the admittance and bleeding off of pressurized fluid into the annular space. This valve assembly is adapted to first admit pressurized fluid into the annular space to set the packers and pressure test the tubing wall between the packers at pressures as high as 5000 psi. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining

the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 4,587,619 discloses a "Method And Apparatus For Electronic Leak Testing" patented May 6, 1986 to V. G. Converse, III et al and assigned to Scans Associates, Inc. The '619 patent provides an electronic dynamic balancing leak testing system utilizing "live zero" technology. A source of test medium is introduced at a predetermined desired pressure or vacuum in fluid flow communication with the part to be tested. After the part is filled with the test medium an interval is provided for the system to stabilize. The test part is

momentarily isolated from the test media and a microcomputer system is utilized to cause isolation as well as to measure the differential pressure existing at two points during the test. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold

pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 4,617,824 discloses a "Cylinder Head Pressure Testing Apparatus" patented October 21, 1986 to L. P. Cybulski et al and assigned to R.R. McGlogan Equipment Ltd. The pressure testing system of the '824 patent is designed specifically to testing of cylinder heads and includes an air pressure supply for connecting to an air pressure source with a liquid supply including a pump. A diversion valve is connected to the air pressure supply and pump for receiving air from the air pressure supply and liquid from the pump. It defines an outlet from the diversion valve for supplying air pressure or liquid as selected. A cylinder head inlet means is connected between the diversion valve and the water passage port in the cylinder head and is sealed thereagainst. An outlet valve is included as well as a plug means for sealing all water passage ports in the head. A plug means is included for sealing these water passage ports which includes a clamping plate positionable parallel to the machine surface cylinder head. At least two cross bar members are included for disposition across the side of the cylinder head opposite the clamping plate. A clamping member is connected to each cross bar member for projecting upwardly against the clamping plate. A clamping screw is threaded onto the end of each clamping member. In this manner the sealing plugs may be positioned for compression between the machine surface of the cylinder head and the clamping plate as desired for the purpose of sealing the water passage ports. The above patent is indeed pertinent to the present invention. However, it

does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the

good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 4,675,070 discloses a "Machine For Pressure Testing And Bottom Capping Plastic Bottles" patented June 23, 1987 to M. Pasternicki and assigned to Sidel. The pressure testing machine of the '070 patent is designed for specifically testing bottom capping plastic bottles and includes a first axially reciprocable mechanism for individually seal testing the bottles by internally pressurizing them into a gas at a sufficient pressure to stiffen the bodies thereof. A second axially reciprocating means allows individually securing of flat base cups to the bottoms of the bottles to render them vertically stable. Means are included for synchronously controlling the

axial reciprocation of the first and second means such that the cups are secured to the bottle bottoms during seal testing of the bottles whereas their bodies are sufficiently stiffened by internal pressure to prevent any axial deformation thereof. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low

good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 4,715,214 discloses "Leak Tester" patented December 29, 1987 to R. S. Tveter et al and assigned to S. Himmelstein and Company. The leak testing mechanism of the '214 patent includes a means for sequentially determining the sensed pressure at each of four different times during a measurement period following the isolation of the chamber during which period the pressure in the isolated chamber changes exponentially due to stabilization of the pressure fluid therewithin toward a substantially constant value. A first group of three successive pressure determinations are then calculated and means are included for comparing the first and second

calculated end pressures and determining a pressure differential therebetween. Means are then included for determining the characteristic of the exponential curve defining the rate of the pressure drop due to stabilization of the pressurized fluid. Means are included for calculating the leak rate from the value of the determined characteristic and the determined pressure differential. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by

substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Design Patent No. Des.294,229 discloses a "Machine For Pressure Testing Truck Tires" patented February 16, 1988 to P. Bonazzi. The '229 design patent discloses an artistic design for a machine for pressure testing truck tires which is

completely distinctive from any configuration utilized with the present invention and, as such, the present invention is deemed to be patentably distinguishable thereover.

United States Patent No. 4,791,805 discloses a "Fuel Tank Leak Detector Apparatus" patented December 20, 1988 to D. C. Gates and assigned to Expertek, Inc. The leak detection apparatus of the '805 patent includes closing and sealing of the vacuum chamber followed by sealing all the ports of the fuel tank. The vacuum chamber is then evacuated and scavenged with filtered air. The air pressure therein is reduced rapidly by a first high volume vacuum which compares to pressure in the vacuum chamber with the preset pressure of a second highly sensitive vacuum means. The second vacuum means is opened to the vacuum chamber and the first vacuum means is closed thereto when the pressure in the vacuum chamber equals the pressure set in the second vacuum means. Thereafter the pressurized test gas is ejected into the fuel tank for sensing the output of the second vacuum with a test gas sensing means. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a

snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or

suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 4,942,758 discloses a "High Speed Leak Tester" patented July 241, 1990 to D. H. Cofield. The '758 patent discloses a digital leak testing system which continuously regulates pressure supply. It includes a valve with a continuously opened restricted orifice therethrough for producing flow in a non-laminar fashion. A coupling device is included for connecting the continuously regulated pressure supply to a test piece through the valve such that the work piece is both pressurized and tested through the valve. A differential pressure transducer is connected across the valve for producing an analog signal in response to a differential pressure created by the non-laminar fluid flow and detected across the valve. An analog to digital conversion device is included for receiving the signal from the differential pressure transducer and converting it into a digital signal. A digital computer is included for receiving the digital signal representing the differential pressure value from the converter and for converting the differential pressure into a flow rate and for comparing the flow rate value to a predetermined flow rate value representing a maximum allowable leak rate. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure

value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will

then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 4,953,396 discloses a "Leak Detector For Containers" patented September 4, 1990 to J. W. Langsdorf et al and assigned to General Mills, Inc. The leak detection apparatus disclosed in the '396 patent includes a regulator providing air at a pressure of less than 500 mm Hg. A timing mechanism is provided for providing an adjustable cycle time. A valve means includes an inlet port in fluid flow communication with the regulator for providing air thereto. A

vent port is connected to the atmosphere and a common port outlet and an operator are coupled to the timer for alternating and exclusively placing the common port in fluid flow communication with respect to the inlet and the vent. A shroud is included for receiving a container to be tested. The shroud includes a releasable means for securing the shroud about the container. At least one inflatable air chamber and means are included for providing fluid flow communication between the air chamber and the outlet of the valve. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will

occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 5,092,162 discloses "Static Pressure Testing Apparatus" patented March 3, 1992 to F. Self.

The pressure testing apparatus of the '162 patent includes a manifold with at least one hose filling valve. A pump is included with a low pressure inlet and a high pressure outlet. A throttle regulator valve is positioned in the manifold to determine the pressure of the water therewithin. A return conduit connects the throttling regulator valve to the pump. A first check valve is placed in the source conduit between the manifold and the source of water. This first check valve prevents high pressure flow of water from the manifold to the source of water. A second check valve is placed in the pump outlet conduit interposed between the connection of the manifold to the pump outlet. This second check valve prevents high pressure flow of water from the manifold to the pump means outlet. At least one filler valve is included for passing the water from the manifold to at least one fire hose. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once

this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 5,187,974 discloses a "Vehicular Pressure-Testing Apparatus" patented February 23, 1993 to K. E. Mellits et al and assigned to Snap-on Tools Corporation. The vehicular pressure testing apparatus disclosed in the '974 patent includes an injection structure along with a tank, a pump and fuel lines between these members. A plurality of couplers are included which interconnect the fuel lines and the associated components. The testing apparatus is adapted to be applied to a selected coupler which has been broken. The testing apparatus includes a pair of adapters for respectively attaching to the broken coupler and to a manifold having at least three ports and to two conduits respectively coupled to two of the ports as well as to two quick connectors attached respectively to the conduits. These quick connectors include means for respectively applying to the adapters and a valve between one of the ports and the associated conduit. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed

environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by

depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 5,201,212 discloses a "Line Leak Detector And Method" patented April 13, 1993 to W. Barry and assigned to Tanknology Corporation International. The apparatus of the '212 patent includes means for measuring the temperature of liquid in the liquid fluid containing line before and after testing and for transmitting a signal correlated thereto. Means are included for measuring the temperature and pressure of the liquid in the test reservoir which is in fluid communication with the liquid fluid containing line and for transmitting it which represents the measured temperature and the measured pressure therein. This signal is then received from each of the temperature and temperature and pressure measuring devices for calculating from this a cumulative leak rate at selected time intervals. Means are included for comparing the calculated

cumulative leak rate at each selected time interval to develop trending information for analyzing by comparing the calculated leak rate at each successive time interval to determine whether predetermined criteria of change have been met or not. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part

with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 5,216,914 discloses "Methods And Systems For The Negative Pressure Testing Of Underground Storage Tanks Containing Highly Vaporous Hydrocarbon Liquids" patented June 8, 1993 to J. R. Horner and assigned to Horner Creative Products, Inc. The method of the '914 patent includes the inserting of a fill pipe plug mechanism which incorporates a

passage communicating with a tank ullage. The passage is then communicated with the conduit system connected to a vacuum source and an outlet for the purpose of withdrawing the atmosphere of the ullage and imposing a negative pressure. A vacuum force is utilized to draw off a portion of the content of the ullage. A significant portion of the ullage content is then bled off. The ullage is connected from the outlet while disabling the vacuum source and allowing the vapor mix to stabilize during the stabilization period. These steps are repeated successively and over a predetermined time period. Successive negative pressure readings are taken to indicate a possible rate of decay which is them compared with respect to the predetermined rate of decay which would indicate an excessive leak and a bad part. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard

differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 5,317,899 discloses a "Method For Detecting Leaks In Underground Product Lines" patented to R.

J. Hutchinson on June 7, 1994 and assigned to Control Engineers, Inc. The method of the '899 patent for detecting leaks in underground product lines includes the activating of a pump to increase the pressure in the product line to a pressure greater than the pump discharge pressure. A first and second pressure decay are then calculated in the product line. Each of these decays are based upon measurements of the line pressure made while the pump is running and wherein the line pressure is maintained at a pressure greater than the pump discharge pressure during pressure measurements. The pressure decay gradient is then calculated. Once the pressure decay gradient becomes less than a predetermined acceptable value the product line can be evaluated for the purpose of determining whether it has an acceptable tightness by comparing the value of the second pressure decay to predetermined acceptable values. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being

tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to

the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 5,331,842 discloses a "Cyclical Pressure Testing Apparatus" patented July 26, 1994 to R. G. Wellemeyer and assigned to Smith Fiberglass Products, Inc. The apparatus of the '842 patent is utilized for pressure testing a specimen and includes first and second fluids. The first fluid is used to pressurize the specimen and the second fluid is used to pressure the first fluid. The mixing of the fluids is prevented and the apparatus includes a first cylinder with a first piston dividing the first cylinder into first and second chambers. The first cylinder contains the first fluid. A second piston is included which divides the second cylinder into third and fourth chambers. Means are included for connecting the pistons such that the volume of the first chamber increases in response to a decrease in the volume of the fourth chamber. The above patent is indeed pertinent to the present invention.

However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the

good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 5,375,455 discloses "Methods For Measuring Flow Rates To Detect Leaks" patented December 27, 1994 to J. W. Maresca, Jr. et al and assigned to Vista Research, Inc. The method for detecting leaks in the '455 patent includes pressurizing of the pipeline to a first pressure level and measuring changes in the volume of product in the pipeline that are required to maintain it at approximately constant pressure over a first period of measurement. Thereafter the pipeline system is pressurized to a second pressure and changes in the volume of the product in the pipeline there are again monitored to determine what is required to maintain the approximate

constant pressure over a second measurement time period which is approximately equal to the first measurement time period. Thereafter the pipeline is pressurized for a third time where at least two of the first, second and third pressure levels are different and after a period of time approximately equal to the time period between the first and second measurement periods. Thereafter the temperature compensated volume rate is computed between the pressure of the second measurement period and the average pressure during the first and third measurement periods by subtracting the rate of change of volume during the second measurement period from the average rate of change of volume during the first and third measurement periods. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low

good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 5,377,530 discloses an "Apparatus For Hydrostatis Pressure Testing of Tubular Products" patented January 3, 1995 to B. F. Allen et al and assigned to Combustion Engineering, Inc. The apparatus of the '530 patent

includes a first gripper assembly having a first seal bladder and a first gripper member connected to each other. A second gripper assembly has a second seal bladder and second gripper connected to each other. A connecting member attaches the first and second gripper assemblies. Means are included for expanding the first and second seal bladders into sealing engagement with an inner surface of the tubular product. Further expansion means are included within each of the first and second gripper members. Means are included for inducing pressure within a segment of the tubular product between the first and second gripper assemblies. the means to expand each of the gripper members includes a gripper bladder positioned within each of the gripper members and a fluid pressure supply line in fluid flow communication with each of the gripper bladders. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of

the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize.

This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 5,412,978 discloses a "Leak Detection System" patented May 9, 1995 to G. R. Boone et al and assigned to Phase 1 Instruments, Inc. The leakage test apparatus of the '978 patent includes a means for filling a part to be tested for leakage at the first rate of flow rates. This is defined as the first means for filling. A second means for filling is also included at a second range of flow rates wherein a maximum flow rate of the second range of flow rates is less than the maximum flow rate of the first flow rates. A third means is associated with the first and second means for sensing flow into the part and also for initiating the second means in response to the sensed flow when a flow rate of the first range of flow rates approaches a predetermined or pre-specified value. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the

instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably

distinguishable thereover.

United States Patent No. 5,415,033 discloses a "Simplified Apparatus For Detection Of Leaks In Pressurized Pipelines" patented May 16, 1995 to J. W. Maresca, Jr. et al and assigned to Vista Research, Inc. The '033 patent discloses an apparatus for detecting leaks which includes a pressure vessel for maintaining constant pressure approximately during a predetermined test measurement period. A measurement vessel is connected to the pressure vessel by a liquid communication and vapor pressure communication means. A valve is included for opening and closing the liquid communication means between the pressure vessel and the measurement vessel. The pressure adjustment means is included for adjusting the pressure within the pressure vessel within the measurement vessel and the pipeline system such that the apparatus can be operated at multiple pressures. A measurement or monitoring means is included for determining the change in volume of liquid product in the measurement vessel responsive to changes in volume in the pipeline during the test measurement period. A connecting means is included for connecting the pressure vessel and the measurement vessel to the pipeline system. In this manner the liquid product from the pipeline system can enter and partially fill the pressure vessel and the measurement vessel. The measurement vessel is in liquid flow communication with the pipeline system during the test measurement period. On the other hand, the present invention discloses a unique method for leak

testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot

pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 5,528,926 discloses a "Method For Pressure Testing Valves" patented June 25, 1996 to J. P. Emmitte, Jr. The method for pressure testing valves disclosed in the '926 patent includes releasably securing at least one first seal plate of at least one first seal head within the valve

testing machine without screwing or bolting the first seal plate therewithin. A first valve is then disposed in the valve testing machine. Thereafter at least one opening of the first valve is sealed with a first sealing surface disposed on the one first seal plate. The first valve is then pressure tested by pumping of pressurized fluid into the valve through at least one opening defined therewithin. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by

substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 5,546,789 discloses a "Leakage Detection System" patented August 20, 1996 to D. J. Balke et al and assigned to InterTech Development Company. The leakage detection apparatus of the '789 patent includes a first

connection line in fluid communication with the interior of the part to be tested. A sealed test enclosure is included for enclosing the test part in a sealed environment. A reservoir is included which encloses a volume of gas. A second connecting line provides gas flow between the enclosed volume of the reservoir and the sealed environment of the sealed test enclosure. A reference bias flow generator injects a reference bias flow gas into the second connecting line. A leak sensor is operatively connected through the second connecting line for sensing an algebraic sum of the reference bias flow of gas and a gas flow between the test enclosure and the reservoir. In this manner it can detect a leak or the algebraic sum of the reference bias flow of gas and a gas flow between the test enclosure and the reservoir exceeds a pre-designated magnitude. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time

delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will

depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 5,563,336 discloses an "Apparatus For Pressure Testing Of Tubulars" patented October 8, 1996 to R. J. Mallet. The apparatus of the '336 patent includes a cylindrical tester body with two or more external circumferential resilient seal elements spaced apart from one another. The tester body forms a test chamber when placed in a desired position. A pressurized test gas source is provided, as well as a means for supplying pressurized gas thereto. An expanding means is included which is cooperatively attached to the tester body, and is responsive to seal gas pressure for expanding the seal elements. A pressurized seal gas source is included. A supply means is included for providing pressurized seal gas to the expanding means for expanding of the seal elements. It also withdraws the seal gas from the expanding means which retracts the seal elements. The supply means also includes a seal gas saver valve attached to the tester body. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is

accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no"

answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 5,574,213 discloses an "Apparatus And Method For Detecting Leaks" patented November 12, 1996 to Alfred W. Shanley. The leak testing method of the '213 patent includes providing a refrigerant coil prior to assembly into a refrigerant system with a refrigerant coil having an inlet and an outlet. The inlet of the refrigerator coil is coupled directly to a first conduit for supplying a flow of mixture of carrier gas and atomized UV fluorescent liquid dye to the refrigeration coil. The outlet of the refrigeration coil is coupled directly to the second conduit for exhausting a flow of a mixture of carrier gas and atomized UV fluorescent liquid dye from the outlet of the refrigerator coil. A predetermined quantity of the UV fluorescent liquid dye is introduced into the mixer, and flow is initiated of carrier gas through the mixture means to mix the liquid dye in the carrier gas, and form an atomized mixture of dye and carrier gas. The atomized mixture flows through the first conduit into the refrigeration coil, and then the refrigeration coil is pressurized. The refrigeration coil is monitored for leakage and thereafter is depressurized. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for

conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then

be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 5,616,854 discloses an "Apparatus For Pneumatically Testing Pipes For Leaks" patented April 1, 1997 to Paul Berg. The apparatus of the '854 patent is for the purpose of testing a section of pipe for leaks and includes a first portion which an attachment mechanism for

attaching it to a portion of a pipe for testing. An enclosure is defined for enclosing the section of pipe, and a sealing means for sealing the attachment means to the pipe. A second portion is included with a second portion attachment means for attaching it to the section of the pipe to be tested. An enclosure means is included for enclosing the section of pipe. Second portion sealing means is included for sealing the second portion attachment means to the pipe. A resilient expansion device mechanism is included for permitting movement of the first portion relative to the second portion to allow expansion of the pipe. The expansion means is secured to the first portion and to the second portion. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam

threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 5,760,296 discloses "Cooling System Pressure Testing For Leak Detection" patented June 2, 1998 to Mark Stephen Wilson and assigned to ABW Australia Pty. Ltd. The leak detection system of the '296 patent is designed for

attachment to the inlet opening of an object for pressure testing thereof. The inlet opening preferably will include a neck with an outside surface. The testing device includes a stem and a sealing head. The head has a bladder with a bladder inlet. It also includes a passage extending through the bladder having a passage inlet for coupling to a source of fluid pressure and a passage outlet. A coupling is included on the stem which has an attachment for releasably securing of the device to the outside surface of the neck of the inlet opening. The coupling is adjustably mounted to the stem. A guard is adjustably mounted to the stem and moves into engagement against the inlet opening to abut thereagainst. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within

the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is

deemed to be patentable in view thereof.

United States Patent No. 5,847,264 discloses a "Leak Tester With Flexible Equation Capabilities" patented December 8, 1998 to Carl R. Martin and assigned to Roper Holdings, Inc. The method for leak testing of the '264 patent includes an output and a transducer input wherein a leak test program is stored with a series of steps. An equation is selected within the program by initially choosing one of the plurality of equations which have a plurality of input variables and an output variable. The inputs include a register value, a compensation value, a calibration value and a step result, and the outputs include at least one of an output compensation value, an output calibration value, and an output step result, or an output register. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial

test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 5,880,358 discloses a "Method And Apparatus For Pressure Testing Valves" patented March 9, 1999 to John P. Emmitte, Jr. The valve testing machine of the '358

patent includes a frame or a means for mounting a valve pressure tested within the frame. At least one seal plate is included having first and second ends. A force transmitting member is included associated with a frame for forcing a seal plate into sealing engagement with one of the openings of the valve. A mounting plate is cradled for releasably securing the mounting plate of a seal plate to a cradle support plate. The cradle support plate is operatively associated with the force transmitting member. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure

within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this

unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 5,883,302 discloses "Pressure Testing Of Engine Components Having Coolant Flow Paths" patented March 16, 1999 to Lindsay Raymond Kent and assigned to Kent & Swart Investments CC. The method disclosed in the '302 patent is for pressure testing an engine component which has a cavity through which cooling water will circulate. The method includes closing each port defined in the testing part by pressing a port closing element onto the face so as to block off the port. Thereafter, a pressure differential will be established between the inside and the outside of the cavity such that the port closing elements are pressed into the face by means of a transparent glass plate. This glass plate is pressed onto the port closing elements by way of a frame with a layer of elastomeric material positioned between a load bearing face of the frame and the glass plate. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure

sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then

be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 5,920,009 discloses a "Method For Generating A Certain Constant Pressure In A Test Liquid Of A Test Apparatus" patented July 6, 1999 to Thomas Enders et al and assigned to Robert Bosch GmbH. The method of monitoring pressure in the '009 patent includes directing compressed gas from a tank through a first shut off valve into a first chamber of a double chamber reservoir. The test fluid is directed from the test fluid supply container through a second shut off valve into a second chamber of the double chamber reservoir. In this manner, it will forced compressed gas into the chamber of the reservoir back into the compressed gas tank. Thereafter, the second shut off valve will be closed to prevent test fluid from flowing back into the supply container. A third shut off valve is then closed in a test line from the reservoir to a test specimen to permit test gas to flow to the test specimen. Compressed gas is again applied through the pressure regulator valve back into the first chamber of the reservoir to force test fluid via the test line to

the test specimen. A constant pressure is maintained within the first chamber of the reservoir during this test. The pressure of test fluid is measured prior to passing through the test specimen. Any test fluid is then directed through the test specimen into the catch pan. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than

the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 6,116,340 discloses a "Downhole Build-Up Pressure Test Using Coiled Tubing" patented September 12, 2000 to Scott James Wilson et al and assigned to Atlantic Richfield Company. The wellbore testing apparatus of the '340 patent includes the steps of lowering a string of coiled tubing through production tubing to a point adjacent the formation. The wellbore is then unloaded by forcing fluids standing within the wellbore to the surface, and establishing flow from the formation into the wellbore prior to isolating the formation by actuating a jet pump. The formation is isolated from the wellbore above the formation by setting a packer which

is carried on the coil tubing string. The pressure within the wellbore is sensed adjacent to the formation. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining

whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 6,164,139 discloses a "Pressure Test Gauge Assembly" patented December 26, 2000 to Patrick P. Krimmer. The pressure testing gauge of the '139 patent includes a metal tubular body with a pressure valve stem defined therewithin. It includes an internal diameter, as well as a proximate end having an internal threading, and a distal end having an internal threading. A set of transparent tubular plastic sheath bodies will removably enclose the gauge bodies.

Each of these sheath bodies has an open proximate end and a closed distal end. The maximum pressure rating is color coated over the external surface. The metal tubular body and each of the sheath bodies are interchanged to identify a selected maximum pressure rating. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot

pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be

patentably distinguishable in light thereof.

United States Patent No. 6,199,432 discloses "Fluid Pressure Testing" patented March 13, 2001 to Derek Dunn and assigned to BG PLC. The apparatus for fluid pressure testing defined in the '432 patent include a coupling for coupling a pressure testing device to an auxiliary pipe having a bore therethrough and connected to a main pipe. An elongated flexible fluid bore is defined for providing an independent passage between the coupling and the main pipe by way of the bore of the auxiliary pipe to provide a fluid pressure sensing path adjacent to the main pipe to detect main pipe fluid pressure. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The

low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be

patentable in view thereof.

United States Patent No. 6,209,560 discloses a "Pressure Testing Assembly And Testing Method For Propane Tank Systems" patented April 3, 2001 to Jimmie Bryant Shaw and assigned to Presto-Tap, LLC. The apparatus for pressure testing in the '560 patent includes a valve and connector assembly for connection between the regulator and service valve in place of a standard connector. Also included is a separate pressure gauge adapted to be carried by tank repair personnel which includes a pressure gauge and mounting means. This can be affixed to the pressure gauge. In this manner it provides connection of the pressure gauge to the free end of the branch connector portion of the valve assembly, such that when connected to this free end, it will provide an actuation of the valve stem. In this manner, with the tank service valve open, the gauge will provide a reading of the tank pressure value for providing an indication of the presence of a leak or open line at any place at any location within the propane tank system. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a

snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or

suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 6,223,766 discloses a "Pressure Testing Apparatus And Testing Method For Propane Tank Systems" patented May 1, 2001 to Jimmie Bryant Shaw et al and assigned to Presto-Tap, LLC. The connector unit disclosed in the '766 patent provides connection between a tank service valve and a regulator of a propane tank system. The connector unit includes a unitary monolithic manifold connector block. This block is adapted to be directly or indirectly connected to the tank service valve. The manifold block includes a bore extending therethrough which defines first and second output ports, and a further bore extending orthogonally to the bore and connected thereto to defined a third output port. One of these bores is adapted to be connected to the valve unit and includes a drilled portion of a diameter less than 0.054 inches. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to

the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered

followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be patentably distinguishable in light thereof.

United States Patent No. 6,279,383 discloses a "Method And Apparatus For Detecting Leakage" patented August 28, 2001 to David J. Balke et al and assigned to Intertech Corporation. The leak detection method of the '383 patent include placing the device being tested in a fluid flow path, and providing a pressure transducer downstream in the fluid flow path from the device being tested. A volume of gas is then provided in pressure communication with the pressure transducer which detects a first pressure at the pressure transducer when the valve under test is closed to prevent fluid flow therethrough. A second pressure is detected at the pressure transducer at a predetermined time period thereafter. In this manner, the difference between the first and second detected pressures defined the measure of the leakage of the device being tested and

provides a second volume of gas downstream from the pressure transducer. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure

is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

United States Patent No. 6,318,155 discloses a "Pressure Testing Apparatus" patented November 20, 2001 to Bruce Carr. The pressure testing apparatus of the '155 patent is designed specifically for pressure testing internal combustion engine cooling systems, which preferably includes a first air conduit with a means for regulating air pressure associated therewith. Means are included for turning off the flow of pressurized air from the source, and an exhaust conduit is included in fluid flow communication with the first air conduit

for exhausting of coolant from the cooling system after use. Also, a selectively actuable valve means controls flow of coolant from the first air conduit into the exhaust conduit. With this construction, the valve means provides a three way valve facilitating flow of pressurized air into the forced air conduit, or a flow of coolant into the exhaust conduit. In this manner, pressure is maintained of the pressurized air in the cooling system at a constant value, and thereby, also functioning as a switching means. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter

occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 6,348,869 discloses "Pipe Leak Detection" patented February 19, 2002 to Robert Phillip Ashworth and assigned to Lattice Intellectual Property Limited. The leak testing method disclosed in the '869 patent includes providing a substantial equal pressure between a first location and an adjacent test location in the pipe to prevent fluid passage therebetween. Any pressure decay is determined at the test

location which indicates pipe leakage. The pressure at the first location is then measured and adjusted in order to monitor the pressure at the test location so as to maintain substantial equal pressure between the first and second locations during the entire testing process. On the other hand, the present invention discloses a unique method for leak testing of parts which is also usable for conducting this test at pressures less than atmospheric condition. The process includes the presetting of a plurality of test parameters which include the test pressure value, the standard pressure differential value, the total test time, the snapshot time delay, the slam test time, and the slam pressure differential value. Once these initial test parameters are determined, the test part will then be sealed with a fill line, and a pressure sensing mechanism will be attached thereto in fluid flow communication with respect to the sealed environment defined within the specific part being tested for leaks. It will then be pressurized by supplying a fluid and some type of inert gas through the fill line into the part being tested will monitoring therein. The pressurization will then cease followed by a short period of time of a duration equal to the snapshot time delay. Then the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part once this snapshot time delay has expired. This will provide all of the information necessary in order to then calculate the low good standard threshold pressure by subtracting the standard differential value from the snapshot

pressure value. Also, it will now be possible to calculate the low good slam threshold pressure by subtracting the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part being tested followed by a delay for a period of time equal to the slam test time after determining the snapshot pressure value. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure, and if the answer is "yes", the process will then proceed to display that a good part has been proven, and depressurization of the part will then occur. However, if the answer to the slam test is "no", then the standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if "yes", a bad part indication will be rendered followed by depressurization. On the other hand, if the answer to the standard test is "no", then it will be performed again and again repeatedly until the expiration of the total test time, and then, once this time has expired, if all of the standard tests have a result of "no", then an indicator means will be activated to show that the current test has yielded a "good part" result followed by depressurization of the test part. Applicants deem that this unique process is not shown or suggested, or in any way anticipated by or made obvious by the disclosure of the above-identified patent, and as such, the present invention as detailed in the claims currently pending herewithin is deemed to be

patentably distinguishable in light thereof.

United States Patent No. 6,530,264 discloses "Detection Systems And Methods" patented March 11, 2003 to Karl K. Rink et al and assigned to Autoliv ASP, Inc. The method of the '264 patent includes the external applying a first quantity of tracer gas medium containing at least one radioactive trace material to at least a portion of a first chamber wall containing pressurized fluid at a pressure level of at least 200 psi of at least one first test object. Thereafter, the radioactive signals are measured emanating from a first chamber after the external application of the tracer gas medium. The above patent does not anticipate the method disclosed in the present invention which is designed specifically for leak testing of parts of various configurations. The present method includes presetting a plurality of uniquely defined test parameters. Thereafter, the test part is sealed and pressurized. This pressurization is carefully monitored to be sure that it is accurate, and after reaching the desired full pressurization, the method includes pausing for a period of time which is of a duration equal to a snapshot time delay. Thereafter, the snapshot pressure value is determined by measuring the instantaneous current pressure within the pressurized part. Once this step has been completed, a low good standard threshold is pressure value is calculated by substrating the standard differential value set as an initial test parameter from the snapshot pressure value. Also, a low good slam threshold pressure is calculated by substrating the

slam differential value from the snapshot pressure value. The current pressure is instantaneously measured within the part, and a delay thereafter occurs for a period of time equal to the slam test time also set as an initial test parameter after determining the snapshot pressure value. The slam test is then performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value, and if the result of this inquiry is "yes", then the process will proceed to displaying of the good part indicator, followed by full depressurization. If not, then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if it is, displaying a bad part indicator and proceeding to full depressurization of the part being test. The standard test will be performed repeatedly until the expiration of the total test time set as an initial test parameter, and then if all standard tests result in a "no" answer, then the process will proceed to display an indicator showing that the part is good, and then will depressurize the part. This is a unique method not shown or suggested in the above patent, and as such, is deemed to be patentably distinguishable thereover.

United States Patent No. 6,549,857 discloses "Method For Detecting Leaks In Pressurized Piping With A Pressure Measurement System" patented April 15, 2003 to Michael R. Fierro et al and assigned to Vista Research, Inc. The leak detection method of the '857 patent includes the initial measuring of a

difference in the rate of change of pressure due to a leak between one pressure level and at least one other pressure level after the compensation has been made for thermally induced changes to the pressurized pipeline system. Initially, the pipeline is pressurized to a first pressure level to determine a set of first pressure data by measuring the changing pressure in the pipeline system that occurs over a first measured time period. Thereafter, the pipeline system is pressurized to a second pressure level to determine a set of second pressure data. Thereafter, the difference is computed between the temperature compensation rate of change pressure at the first pressure level during the first period, and a pressure level during the second period. The computing is performed on the first and second pressure data, and includes a correction for thermally induced non-linear changes of pressure between the measurement periods. In this manner, differences in the temperature compensation rate of change of pressure between the pressure levels is computed from the rate of change of pressure calculated from the first and second data, and at least one higher order derivative of the pressure date. The above patent is indeed pertinent to the present invention. However, it does not disclose the unique double threshold testing procedure set forth in the method as detailed in the claims of the present invention. The present invention is particularly useful for leak or vacuum testing of parts, wherein a plurality of test parameters are preset with the test part sealed with a fill line, and a pressure sensing means

attached thereto in fluid flow communication with respect to the sealed environment defined within the part. The test part is then pressurized by supplying of fluid through the fill line into the part being tested while monitoring thereof. Thereafter, pressurization of the test part ceases and a time delay will occur equal to the snapshot time delay which is one of the preset test parameters. Thereafter, the snapshot pressure value will be determined by measuring the instantaneous current pressure within the pressurized part. The low good standard threshold pressure will then be calculated by substrating the standard differential value from the snapshot pressure value. Another calculation will occur immediately at the same time, or immediately thereafter, wherein a low good threshold pressure will be determined by substrating the slam differential value from the snapshot pressure value. The current pressure will then be measured instantaneously within the part with a delay thereafter for a time period equal to the slam test time. The slam test will then be performed by determining whether the measured current pressure is greater than the low good slam threshold pressure value. If the answer to this inquiry is "yes", then the process will proceed to display the good part indicator, and will ultimately depressurize. If, however, the answer to that slam test is "no", then a standard test will be performed to determine whether the measured current pressure is less than the low good standard threshold pressure, and if the answer to that inquiry is "yes", a bad part indicator will then be displayed followed by

depressurization. If, however, the result is "no", then the standard test will be performed repeatedly until expiration of the total test time, and then if all standard tests which are performed prior to the expiration of the total test time did indeed a "no" result, the process will proceed to display a good part indicator and will depressurize. This unique process is not taught in any way by the disclosure, specification or claims of the above-identified patent. As such, the present invention is deemed to be patentable in view thereof.

The above prior art constitutes the closest prior art of which the applicants are aware, and in view of the arguments submitted hereabove, applicants deem that the claims in the present application as now presented are in allowable condition, and the allowance thereof is hereby respectfully solicited.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

on 2/22/04

Section 2. Form PTO - 1449 (Modified)

FORM PTO-1449 (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary) (37 CFR 1.98(b))	ATTY. DOCKET NO. STEW-11	SERIAL NO. 10/718,476
	APPLICANT Jack D. Stewart Joseph E. Hanusey, Jr.	
	FILING DATE 11/20/03	GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		PATENT NUMBER	ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		4089206	5-16-78	Franks et al			
		4106263	8-15-78	Conrad			
		4126034	11-21-78	Conrad			
		4182159	1-8-80	Chyuchman			
		4197733	4-15-80	Holland, deceased et al			
		4207146	6-10-80	Kunke			
		4291573	9-29-81	Richter et al			
		4366715	1-4-83	Bradshaw			
		4378692	4-5-83	Wagle			
		4411350	11-8-83	Schück			
		4414654	11-29-83	Noe et al			

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

		DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication***)**

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		4494402	1-22-85	Carney			
		4555935	12-3-85	Elert			
		4581919	4-15-86	Sullivan			
		4587619	5-6-86	Converse, III et al			
		4618248	10-21-86	Cybulski et al			
		4675070	6-23-87	Kasternicki			
		4715214	12-29-87	Iyeter et al			
		4729429	2-16-88	Bonazzi			
		4791805	12-20-88	Gates			
		4945758	7-24-90	Cofield			
		4953396	9-4-90	Langsdorf et al			

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		5,092,162	3-3-92	Self			
		5,187,974	2-23-93	Mellits et al			
		5,201,212	4-13-93	Williams Burg N.			
		5,216,914	6-8-93	Horner			
		5,317,899	6-7-94	Hutchinson et al			
		5,331,842	7-26-94	Wellemeyer			
		5,374,555	12-20-94	Maresca Jr. et al			
		5,377,530	1-3-95	Allen et al			
		5,412,978	5-9-95	Boone et al			
		5,415,033	5-16-95	Maresca Jr. et al			
		5,525,926	6-25-96	Emmitte, Jr.			

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		5,554,789	8-20-96	Balke et al			
		5,563,336	10-8-96	Mallet			
		5,574,213	11-12-96	Shanley			
		5,617,854	4-1-97	Berg			
		5,760,296	6-2-98	Wilson			
		5,844,726	12-8-98	Martin et al			
		5,880,358	3-9-99	Emmitte, Jr.			
		5,883,302	3-16-99	Kent			
		5,920,009	7-6-99	Enders et al			
		6,116,340	9-12-00	Wilson et al			
		6,164,139	12-26-00	Krimmer			

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		6,199,432	3-13-01	Dunn			
		6,209,360	4-3-01	Shaw			
		6,237,766	5-1-01	Shaw et al			
		6,279,383	8-28-01	Balke et al			
		6,318,155	11-20-01	Carr			
		6,348,869	2-19-02	Ashworth			
		6,530,264	3-11-03	Fink et al			
		6,549,857	4-15-03	Fievre et al			

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